

CHOLESTERIC LIQUID CRYSTAL CELL DEVICES AND SYSTEMS

ABSTRACT OF THE DISCLOSURE

Cholesteric liquid crystal cell units are used for reflecting or transmitting incident light responsive to control signals. A cholesteric liquid crystal cell unit has a first
5 cholesteric liquid crystal cell and a second cholesteric liquid crystal cell. The second
cholesteric liquid crystal cell respectively reflects or transmit lights from the first cholesteric
liquid crystal cell responsive to a control signal when the first cholesteric liquid crystal cell
reflects circularly polarized light of one state or transmits the incident light. In one
embodiment of the cell unit, a π -phase waveplate element is located between the first and
10 second cholesteric liquid crystal cells. With the cholesteric liquid crystal cell units, devices
such as optical switches, and WDM add/drop multiplexers, and optical switch systems with
arrays of input and output optical fibers, between a switching matrix formed by the cholesteric
liquid crystal cell units, may be constructed.